THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte JEFFREY S. DUGAN

Appeal No. 98-1499
Application No. 08/392,493[1]

ON BRIEF

Before MEISTER, FRANKFORT, and GONZALES, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's refusal to allow claims 1, 5, 6, 12, 13, 20 through 32, 34, 36, 39 and

[1] Application for patent filed February 22, 1995.

42 through 47 as amended subsequent to the final rejection in a paper filed February 4, 1997 (Paper No. 8). The above enumerated

claims are all of the claims remaining in the application, claims 2 through 4, 7 through 11, 14 through 19, 33, 35, 37, 38, 40 and 41 having been canceled.

Appellant's invention is directed to a plate-type heat exchanger and to a method of exchanging heat utilizing such a heat exchanger. Claims 1, 36, 42, 46 and 47 are representative of the subject matter on appeal and a copy of those claims may be found in the Appendix to appellant's brief (Paper No. 13).

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Takeshita et al. (Takeshita) (Japanese Kokai)	60-80083	May 7, 1985
Kawaharada et al. (Kawaharada) (Japanese Kokai)	60-93291	May 25, 1985

Claims 1, 27, 36, 42, 44, 46 and 47 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Takeshita.

Claims 20 through 26, 28 through 32, 43 and 45 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takeshita.

Claims 5, 6, 12, 13, 34 and 39 stand rejected under 35 U.S.C. § 103 as being unpatentable over Takeshita in view of Kawaharada.

Rather than reiterate the examiner's full statement of the above-noted rejections and the conflicting viewpoints advanced by the examiner and appellant regarding those rejections, we make reference to the examiner's answer (Paper No. 14, mailed July 29, 1997) for the examiner's reasoning in support of the rejections, and to appellant’s brief (Paper No. 13, filed July 16, 1997) for appellant’s arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to appellant’s specification and claims, to the applied prior art references, and to the respective positions articulated by appellant and the examiner. As a consequence of our review, we have made the determinations which follow.

Looking first to the examiner's rejection of claims 1, 27, 36, 42, 44, 46 and 47 under 35 U.S.C. § 102(b) as being anticipated by Takeshita, we note that the examiner has taken the position (answer, pages 3-4) that

> Regarding claims 1 and 36, Takeshita is believed to meet the limitations of the first embodiment, i.e. paragraph (i). The remaining embodiments have been excluded, since embodiments they are recited in the alternative. Similarly regarding claims 42 and 46, the limitations of the first embodiment are being read, and the remaining embodiments have been excluded.

In addition, on page 7 of the answer, the examiner has provided the explanation that

> Applicant's [sic] discloses two distinct subchannels in a facial surface of a heat exchange plate, where one only has a linear path and the other is a meandering path composed of plural linear paths and non-linear paths. Similarly, Takeshita discloses one subchannel having one linear path and the other subchannel composed of plural parallel linear paths fluidly connected by a perpendicular linear path. Therefore, Takeshita anticipates the claims when read in a similar convention as applicant's subchannels.

Since we find that the examiner's understanding of both the disclosed invention and the invention as claimed (e.g., in

paragraph (i) of independent claims 1, 36, 42 and 46, and in independent claim 47) is based on a misconception concerning the nature of the heating and cooling fluid subchannel sets in the face of each heat exchange plate, and that such error has led to an inappropriate rejection of claims 1, 27, 36, 42, 44, 46 and 47 under 35 U.S.C. § 102(b) based on Takeshita, we will not sustain this rejection.

Each of the claims on appeal define a heat exchanger which includes a heat exchange plate or a plurality of heat exchange plates, wherein each of the plates has a front facial surface and (A) a first heating fluid facial subchannel set comprising at least one heating fluid facial subchannel and (B) a first cooling fluid facial subchannel set comprising at least one cooling fluid facial subchannel, with the first heating fluid facial subchannel set and the first cooling fluid facial subchannel set being mutually aligned in a first heat exchange relationship on the common facial surface. The claims on appeal further set forth with regard to one embodiment covered thereby (e.g., (i) of claims 1, 36, 42 and 46) that said first heating fluid facial subchannel set and

said first cooling fluid facial subchannel set each have a linear flow path and that said first heat exchange relationship comprises a countercurrent, concurrent or crosscurrent heat exchange relationship. Our review of appellant's disclosure indicates that this particular embodiment of appellant's invention is generally depicted in Figure 1 of the application drawings and generally described on pages 6, 7, 9, 10 and 22 through 25 of the specification. Of particular interest to us is the paragraph bridging pages 9 and 10 of the specification, wherein appellant notes that

> in one embodiment of the heat exchanger of this invention, one heating fluid facial subchannel and one cooling fluid facial subchannel on a common facial surface of a plate can be mutually aligned in a first heat exchange relationship

and the disclosure at page 10, lines 15-17, that the heating and cooling fluid subchannels on the common facial surface can each have a "linear" flow path.

In contrast with the examiner's determination quoted above from page 7 of the answer, we understand the claims on appeal to require, with regard to embodiment (i), that the first heating fluid facial subchannel set and the first cooling fluid facial subchannel set each have a linear flow path, that is, that the entirety of the flow path associated with each of the heating and cooling facial subchannel sets in the common facial surface of a heat exchange plate must be linear. Since we agree with appellant's arguments on pages 4-6 of the brief that Takeshita does not disclose or teach an arrangement of heating and cooling fluid facial subchannel sets which each have a linear flow path as required in the claims before us on appeal (i.e., what appellant and the examiner have each referred to as the "first embodiment"), we

will not sustain the examiner's rejection of claims 1, 27, 36, 42, 44, 46 and 47 under 35 U.S.C. § 102(b) as being anticipated by Takeshita.[2]

It follows from our above determinations with regard to Takeshita that we will likewise not sustain the examiner's rejection of dependent claims 20 through 26, 28 through 32, 43 and 45 under 35 U.S.C. § 103 as being unpatentable over Takeshita alone. Moreover, after reviewing the teachings of Kawaharada, we will also not sustain the examiner's rejection of claims 5, 6, 12, 13, 34 and 39 under 35 U.S.C. § 103 as being unpatentable over Takeshita in view of Kawaharada. Simply stated, Kawaharada does not supply that which we have noted above to be lacking in Takeshita, since Kawaharada shows both the heating and cooling fluid facial subchannel sets in each heat exchange plate (10) therein as being nonlinear.

[2] In evaluating the claimed subject matter before us on appeal, we have construed the term "set" in accordance with its common dictionary definition as being a collection of two or more objects or articles to be used together.

In summary, the decision of the examiner rejecting claims 1, 27, 36, 42, 44, 46 and 47 under 35 U.S.C. § 102(b) as being anticipated by Takeshita is reversed, as is the examiner's decision rejecting claims 20 through 26, 28 through 32, 43 and 45 under 35 U.S.C. § 103 based on Takeshita alone. The examiner's decision rejecting claims 5, 6, 12, 13, 34 and 39 under 35 U.S.C. § 103 based on Takeshita and Kawaharada is also reversed.

REVERSED

JAMES M. MEISTER Administrative Patent Judge	)	
CHARLES E. FRANKFORT Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JOHN F. GONZALES Administrative Patent Judge	)	

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REVERSED

Prepared: July 27, 2000